REMARKS

Claims 1-5, 7-10, 13-15 and 17-23 are pending in the application and stand rejected. The Office is requesting submission of corrected drawings with this response. Applicants have submitted formal drawings in the paper filed February 28, 2003. Computer records accessed through "Patent Application Information Retrieval" indicate that the Office has received this submission. Applicants therefore believe that this requirement has been fulfilled and request withdrawal of the objection to the drawings.

Claims 1-5, 7-10, 13-15 and 17-23 are rejected under 35 U.S.C. §112, first paragraph on grounds that the specification, while enabling for embodiments wherein cytokines are present and the levels of those cytokines are no greater than 15 mg/ml IL-3, 15 ng/ml IL-6 and 1.5 ng/ml GM-CSF, does not enable embodiments wherein the cytokines are either not present or are present at levels higher than those listed above. Applicants are amending the claims herein to take these comments into account. In addition, it recently has come to Applicants' attention that certain of the claims and portions of the specification contain an error with respect to the identity of the cytokine intended to be claimed. The amendments therefore also make this correction.

Specifically, claim 1 has been amended to require the presence of IL-3, IL-6 and stem cell factor, and to incorporate certain of the limitations of claim 7, which is cancelled herein, changing granulocyte-macrophage colony stimulating factor (GM-CSF or CSF) to stem cell factor (SCF). Claims 8-10 also are amended to replace granulocyte-macrophage colony stimulating factor with stem cell factor.

The amendments to the claims are supported in the specification of the utility application as filed at page 38,

lines 25-33 in Example 3 which describe the culture conditions used for $CD34^{+++}CD38^{-}$ cells during the transduction process as including 1 ng/ml SCF and not GM-CSF. Further support for this amendment can be found at page 20, line 26 - page 21, line 1, which discusses maintaining cells in medium containing IL-3, IL-6 and SCF (stem cell factor) while examining $CD34^{+++}CD38^{-}$ cells residing in GO for cell division to confirm the non-dividing, quiescent status of the transduced cells.

In addition, further support for the amendments are found in the provisional application from which this application claims priority. This application refers to increasing concentrations of IL-3, IL-6 and stem cell factor for study of metaphases after transduction (page 28, lines 15-19) low and high concentrations of stem cell factor for culture of transduced cells and FISH methods respectfully (page 46, lines 16-20 and page 53, lines 3-7) and low stem cell factor concentrations for maintaining the transduced stem cells during mitotic quiescence testing (page 56, lines 9-11).

The provisional application clearly refers to methods which use a combination of IL-3, IL-6 and stem cell factor for the inventive methods. Long term culture initiating cell assays, in which long term bone marrow cultures were maintained, involved granulocyte-macrophage colony stimulating factor in high concentration (50 ng/ml; page 45, line 24). In addition, primary cells including CD34 cells were cultured in media which included very high concentrations of GM-CSF (1 mg/ml; page 14, lines 22-23). These culture methods, lacking stem cell factor and including granulocyte-macrophage colony stimulating factor are clearly not intended to describe the inventive method and would readily be recognized as unrelated to the transduction methods claimed here by one of skill in the art. Therefore it would have been clear to one of skill in the art that the invention is

described as requiring media containing IL-3, IL-6 and SCF (stem cell factor) rather than CSF (colony stimulating factor).

The use of the incorrect term in the utility application in some instances therefore would clearly be understood by one of skilled in the art both to be an error and to be intended to refer to stem cell factor. The error therefore would be immediately recognized as an obvious error with an obvious correction, based on the disclosures in the priority document, which does not indicate that granulocyte-macrophage colony stimulating factor is useful for the inventive transduction methods but which does teach the use of stem cell factor. The utility application, in the description and Examples cited above, teaches that the inventive method is performed using the cytokines IL-3, IL-6 and stem cell factor (SCF).

Further, the prior art, at the time both the provisional and utility applications were filed, recognized that (1) culturing cells in IL-3, IL-6 and GM-CSF, including levels of these cytokines up to 15 ng/ml, 15 ng/ml and 1.5 ng/ml respectively would not maintain the cells as mitotically dormant, quiescent hematopoietic stem cells in GO and (2) the presence of stem cell factor was necessary to maintain stem cells (see, e.g., Declaration of Saswati Chatterjee under 37 C.F.R. § 1.132, ¶ 9). The inadvertent usage of GM-CSF rather than SCF on page 14 of the specification and in the claims thus is an obvious error under the standards of M.P.E.P. § 2163.07(II), correction of which is supported by the original description. Furthermore the rectification of the error requested here also is obvious to one skilled in the art because the specification, including the example which teaches culture conditions for the transfection, discloses stem cell factor rather than GM-CSF with IL-3 and IL-6 and because stem cell factor was recognized by those of skill to be necessary for stem cell survival.

Applicants therefore request that the amendments correcting the obvious errors in the specification on page 14 and in the claims be entered. Additional amendments are made on page 13 to the description of Figures 2, 4, 5 and 6 as necessitated by renumbering changes made to the drawings, for which Applicants also request entry.

The claims as presently amended recite that IL-3, IL-6 and stem cell factor are present, as recommended by the Office, and also recite the levels of the cytokines which are present as claimed in claim 7. Therefore, Applicants believe that claims 1-5, 8-10, 13-15, 17-18 and 22-23 fully comply with 35 U.S.C. §112, first paragraph and request that the Office withdraw the rejection of these claims. Claims 7 and 19-21 have been canceled, therefore the rejection with respect to these claims is moot.

Claims 19-21 are rejected under 35 U.S.C. §112, first paragraph as lacking enabling support. Applicants have canceled claims 19-21 with this response and therefore request that the Office withdraw this rejection as moot.

For the above reasons, Applicants respectfully submit that the claims are in condition for allowance and request favorable consideration at this time.

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